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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,641	09/09/2003	Stephen W. Moore	DP-309346	4715

7590 03/14/2005  
JIMMY L. FUNKE  
DELPHI TECHNOLOGIES, INC.  
Legal Staff, Mail Code: 480-410-202  
P.O. Box 5052  
Troy, MI 48007-5052

EXAMINER
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GRANT, ROBERT J

ART UNIT	PAPER NUMBER
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2838

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/658,641

Applicant(s)

MOORE ET AL.

Examiner

Robert Grant

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 September 2003.  
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-10 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 9-9-03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 12-19-03  
 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_  
 5) ☐ Notice of Informal Patent Application (PTO-152)  
 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Macharg (US 3,624,481) in view of Bell (5,723,970).

As to claim 1, Macharg discloses a method of providing overcharge protection of a battery comprising the steps of: determining a voltage level at said battery (Column 1, lines 44-47); and automatically disconnecting a charging signal from said battery when said battery voltage level reaches a turn-off threshold voltage level (Column 3, lines 63-64). Macharg does not expressly disclose the battery is a battery pack. Bell discloses charging circuitry which is capable of charging a battery pack (Column 1, lines 32-34). It would have been obvious to a person having ordinary skill in the art at the time of this invention to charge a battery pack with Macharg's circuit design, in order to provide the benefit to allow charging of a battery which is capable of higher voltages and longer life.

As to Claim 2, Macharg in view of Bell disclose all the limitations of claim 1, which claim 2 is dependent upon. Marcharg further discloses steps of: determining the turn-off threshold voltage level (Column 2, lines 42-62, Reference voltage is the

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threshold voltage); determining a turn-on threshold voltage level (Column 2, lines 42-62, Reference voltage is the threshold voltage); and wherein said automatically disconnecting step includes the substeps of: generating an output signal when said battery pack voltage level reaches said turn-off threshold voltage level (Column 1, lines 47-49); and opening a switch coupling a charger that produces said charging signal and said battery pack responsive to said output signal (column 3, lines 63-64).

As to Claim 3, Macharg in view of Bell disclose all the limitations of claim 2, which claim 3 is dependent upon. Marcharg further discloses steps of: discontinuing said output signal and generating a connect signal when said battery pack voltage level reaches said turn-on threshold voltage level (Column 5, lines 4-7); and closing said switch coupling said charger that produces said charging signal and said battery pack responsive to said output signal (Column 1, lines 49-51).

As to Claim 4, Macharg in view of Bell disclose all the limitations of claim 1, which claim 4 is dependent upon. Bell further discloses including the step of scaling a voltage level at said battery pack to obtain a scaled battery pack voltage level as determined by a voltage divider (Column 6, lines 4-16). It would have been obvious to a person having ordinary skill in the art at the time of this invention to provide this feature in order to reduce the power that must be provided to the comparator for comparing the threshold voltage with the battery pack voltage.

As to Claim 5, Macharg in view of Bell disclose all the limitations of claim 1, which claim 5 is dependent upon. Marcharg further discloses step of comparing said

battery pack voltage level to said turn-off threshold voltage level (Column 1, lines 44-53).

As to Claim 6, Macharg in view of Bell disclose all the limitations of claim 2, which claim 6 is dependent upon. Marcharg further discloses step of comparing said battery pack voltage level to said turn-on threshold voltage level (Column 1, lines 44-53).

As to Claim 7, Macharg discloses A protection circuit for a battery comprising: a comparator device for comparing a battery voltage level to a turn-off threshold voltage level (Column 1, lines 44-53); and a switch coupled between a charger and said battery responsive to an output signal (Figure 1, TR3). Macharg does not expressly disclose the battery is a battery pack. Bell discloses charging circuitry which is capable of charging a battery pack (Column 1, lines 32-34). It would have been obvious to a person having ordinary skill in the art at the time of this invention to charge a battery pack with Macharg's circuit design, in order to provide the benefit to allow charging of a battery which is capable of higher voltages and longer life.

As to Claim 8, Macharg in view of Bell disclose all the limitations of claim 7, which claim 8 is dependent upon. Marcharg further discloses wherein said comparator device compares said battery pack voltage level to a turn-on threshold voltage level (Column 1, lines 44-53).

As to Claim 9, Macharg in view of Bell disclose all the limitations of claim 7, which claim 9 is dependent upon. Marcharg further discloses wherein said switch

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automatically disconnects a charging signal from said battery pack when said battery pack voltage level exceeds said turnoff threshold voltage level (Column 3, lines 63-64).

As to Claim 10, Macharg in view of Bell disclose all the limitations of claim 9, which claim 10 is dependent upon. Marcharg further discloses wherein said switch automatically connects a charging signal from said battery pack when said battery pack voltage level is less than said turn-on threshold voltage level (Column 1, lines 44-53).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Grant whose telephone number is 571-272-2727. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RG



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